

Water Control Manual Update & H&H Review/Outlook

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Water Management

Nashville District

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US Army Corps of Engineers
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Water Control Manual Update Status



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Current LRN WCMs

- **“Water Control Manual”**

- ▶ Guiding document that specifies how the Corps of Engineers operates their reservoirs.

- **Current Manuals**

- ▶ Contract with Sverdrup Corp.
- ▶ Completed, Dec. 1998
- ▶ PDF documents ONLY



New Regs

- **ER 1110-2-8156**

- ▶ 31-August-1995
- ▶ Significant changes to style, format, and content of manual



Update Status

- **Clerical contract to create ten templates**

- ▶ Tetra Tech, Inc.

- **Status**

- ▶ Template complete:
 - ▶ Martins Fork
 - ▶ Laurel
 - ▶ Dale Hollow
- ▶ Template first draft:
 - ▶ Wolf Creek
- ▶ Template draft in progress:
 - ▶ Center Hill
 - ▶ J Percy Priest
 - ▶ Cordell Hull
 - ▶ Old Hickory
 - ▶ Cheatham
 - ▶ Barkley



- **Contract awarded 2-Jul; expires 9-Oct**

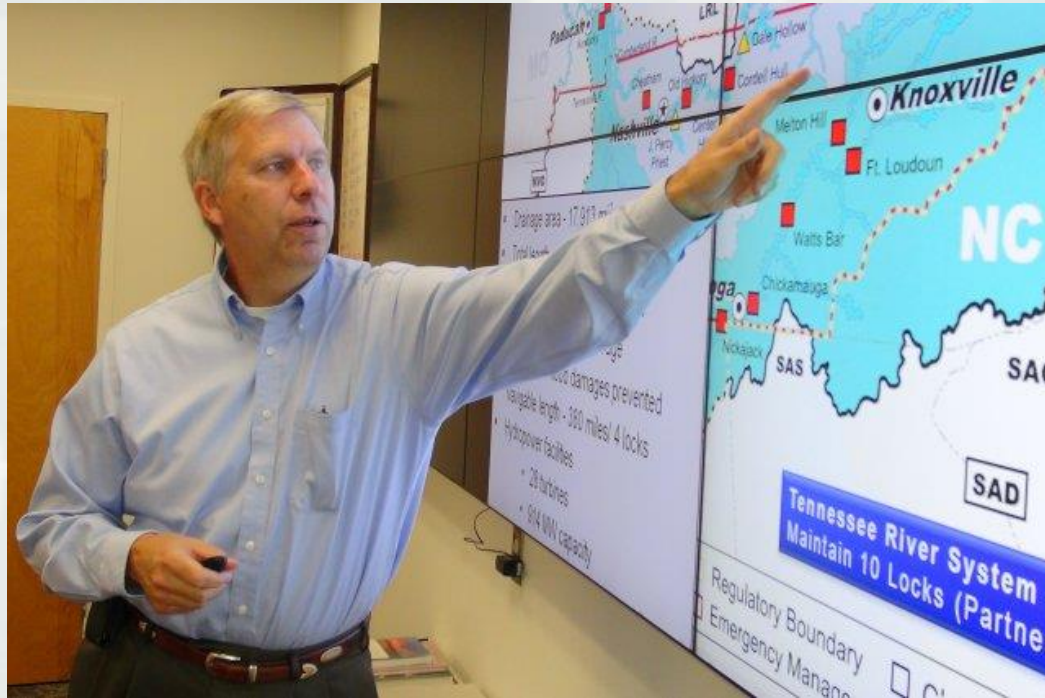


Remaining Work

- **Significant revisions and additions to text**
- **DQC, ATR reviews**
- **Pending review comments, first manuals will be completed in FY 2015**
- **Remaining manuals to follow in subsequent years**



H&H Outlook



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Cumberland River System

STORAGE TYPE



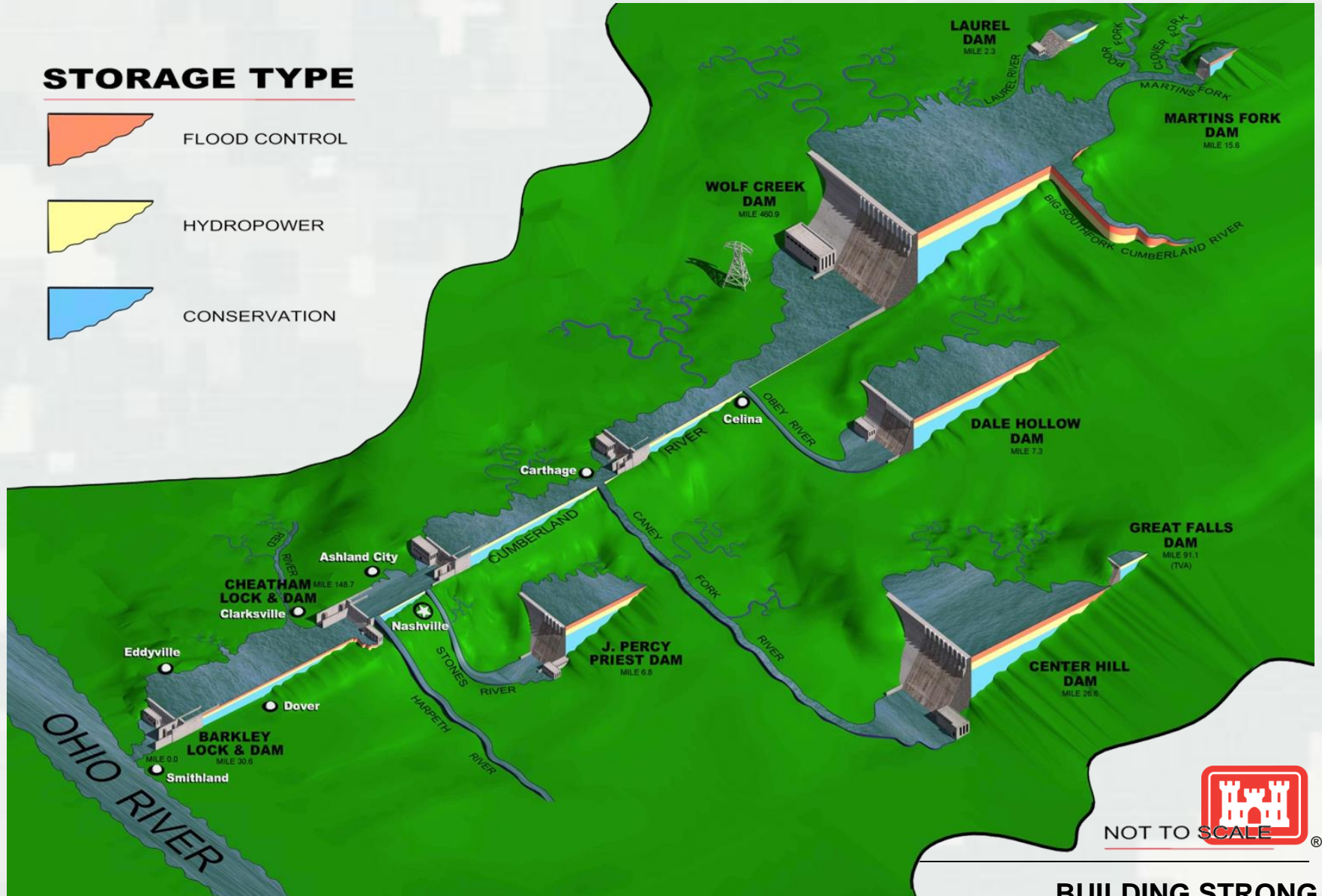
FLOOD CONTROL



HYDROPOWER



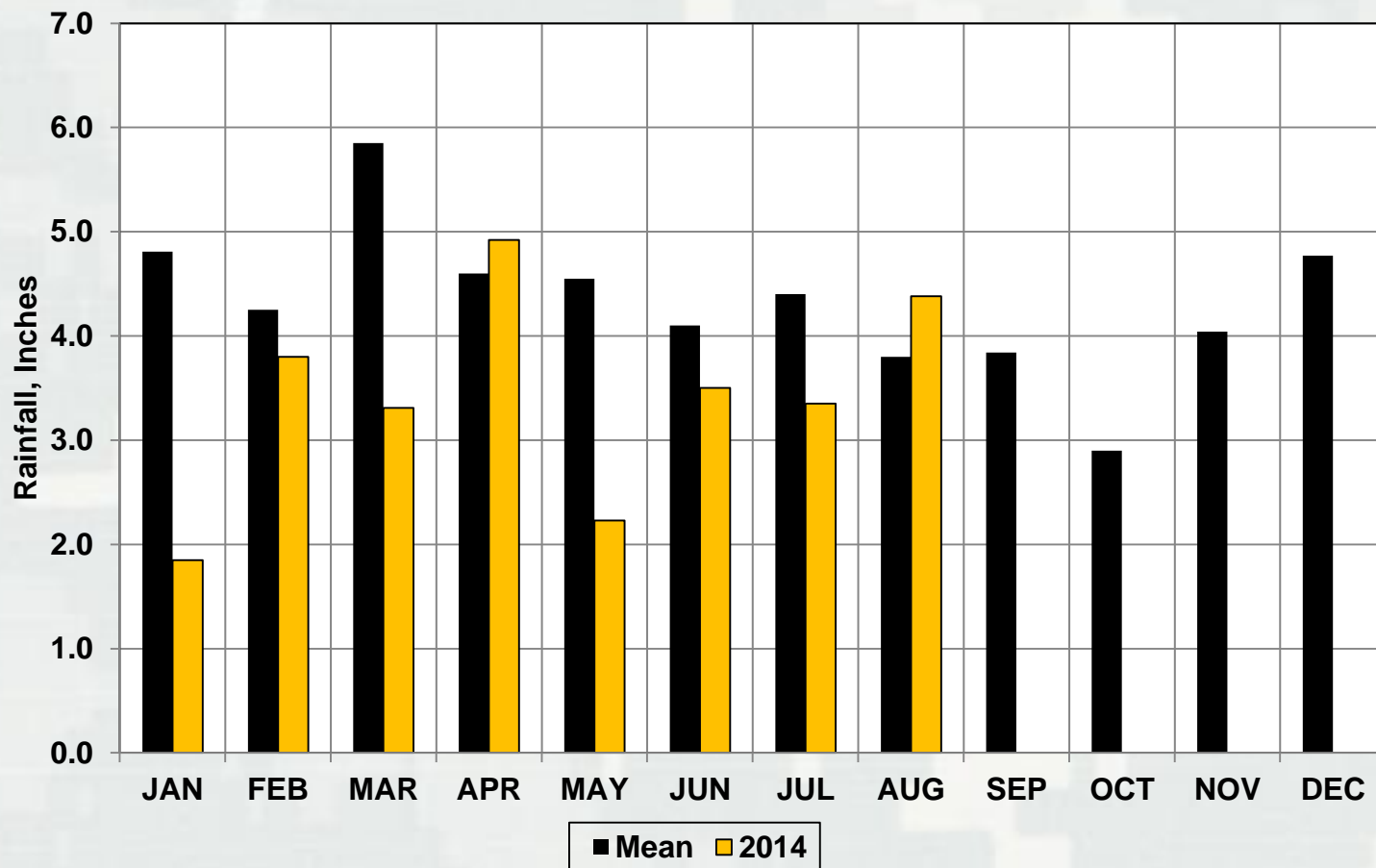
CONSERVATION



NOT TO SCALE

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Cumberland River Basin Rainfall Summary 2014



Median Water in Storage

1 June 2007-2013

Project	Headwater (feet)	Water in Storage (Acre-feet)	% of Normal (%)
Wolf Creek	685.00	449,000	21
Dale Hollow	651.83	519,240	105
Center Hill	631.91	214,470	44
Percy Priest	490.40	129,600	105
Total		1,312,310	40



Water in Storage

1 June 2014

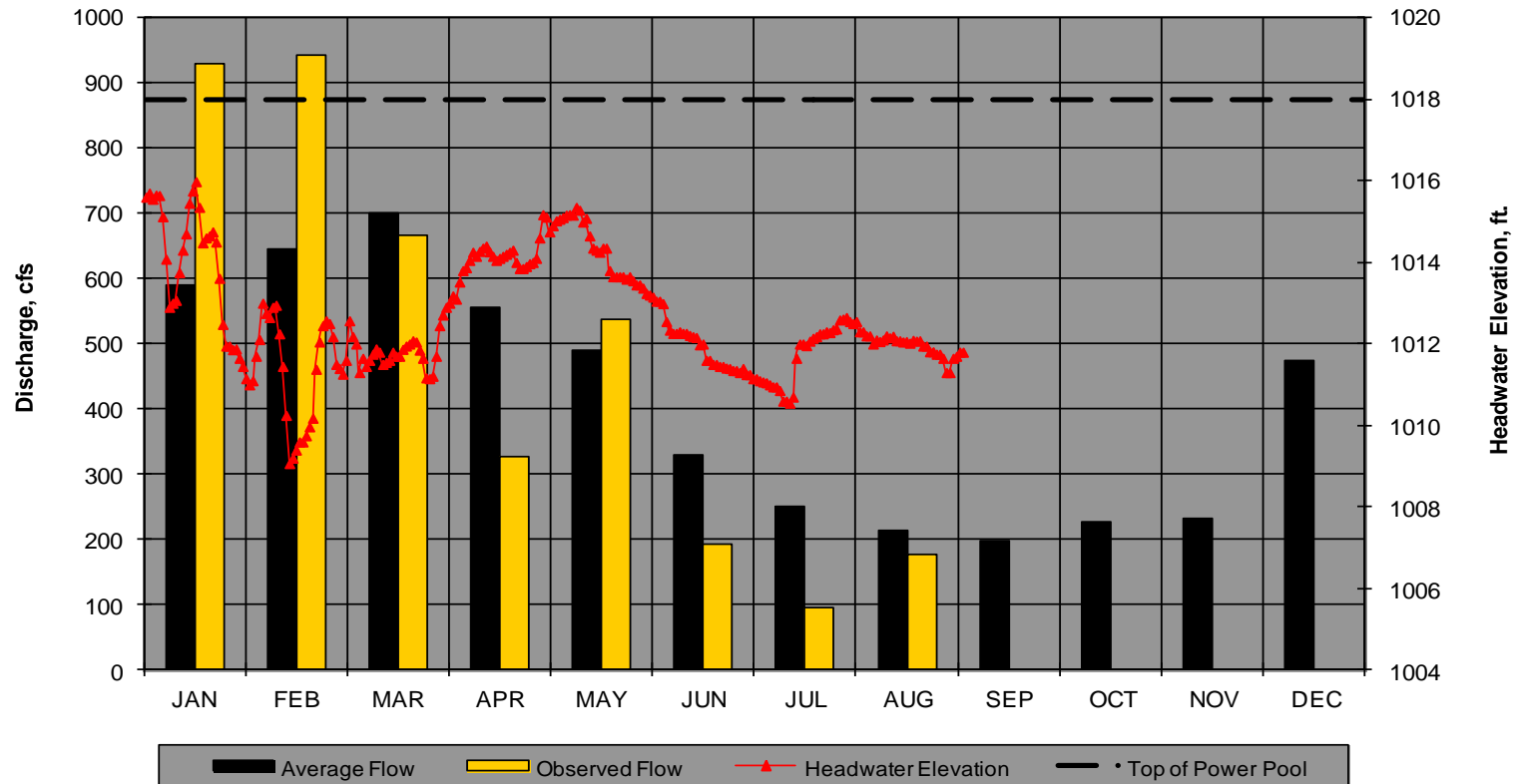
Project	Headwater (feet)	Water in Storage (Acre-feet)	% of Normal (%)
Wolf Creek	722.20	2,101,200	98
Dale Hollow	650.17	473,600	95
Center Hill	632.44	223,000	45
Percy Priest	490.38	129,320	104
Total		2,927,120	90



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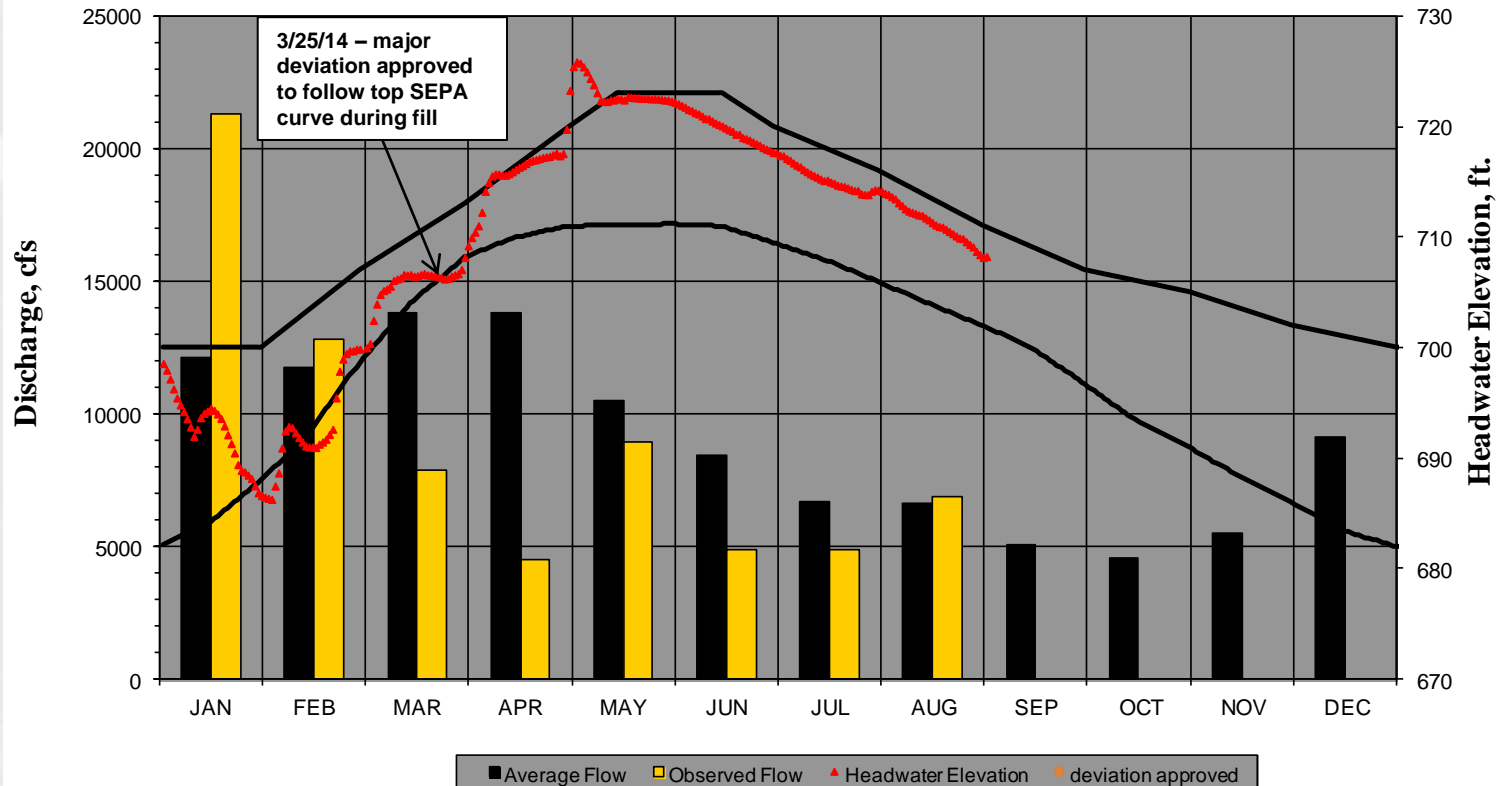
Laurel 2014

Laurel
Flow and Headwater Elevation
January 2014 - August 2014

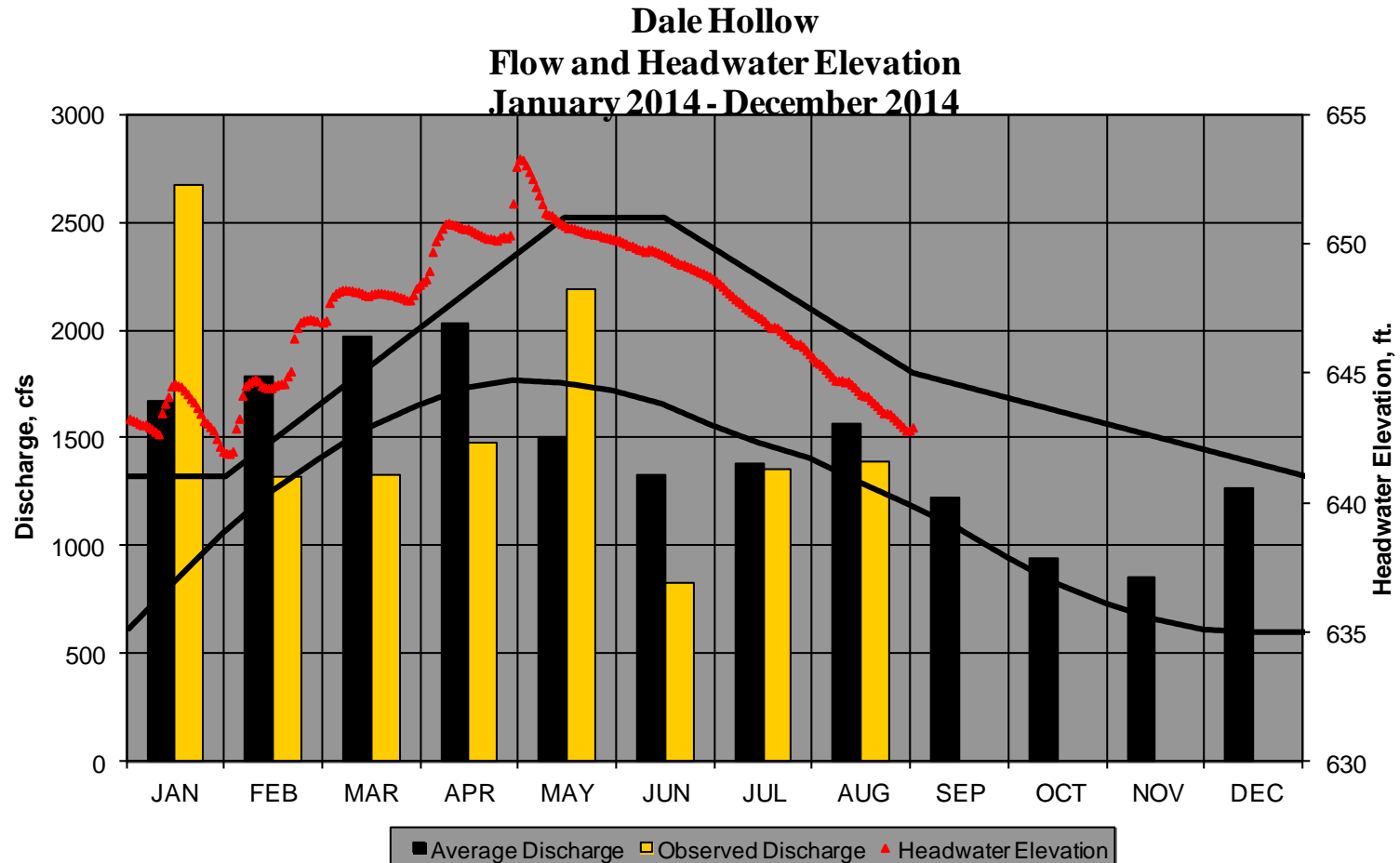


Wolf Creek 2014

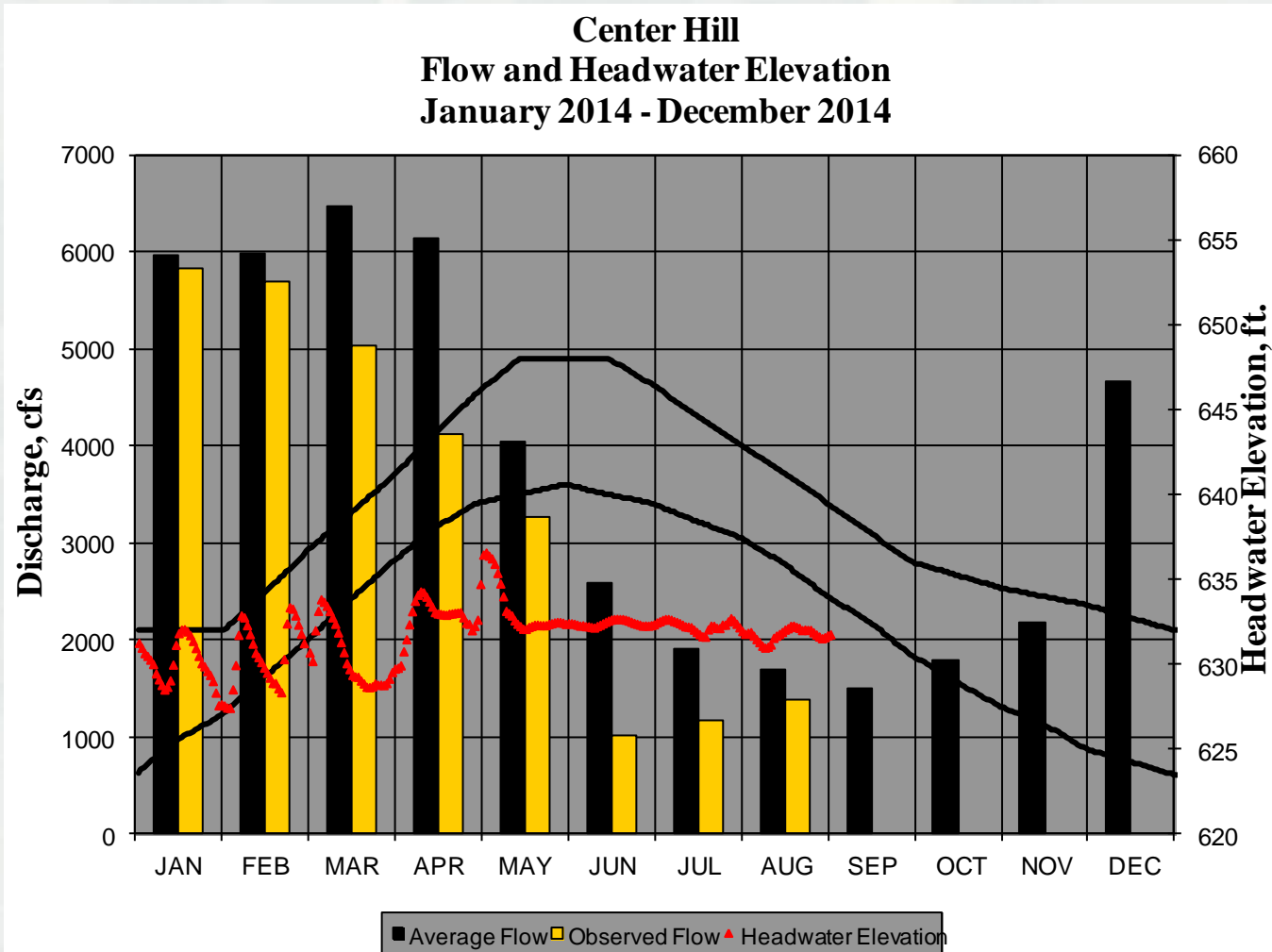
Wolf Creek
Flow and Headwater Elevation
January 2014 - December 2014



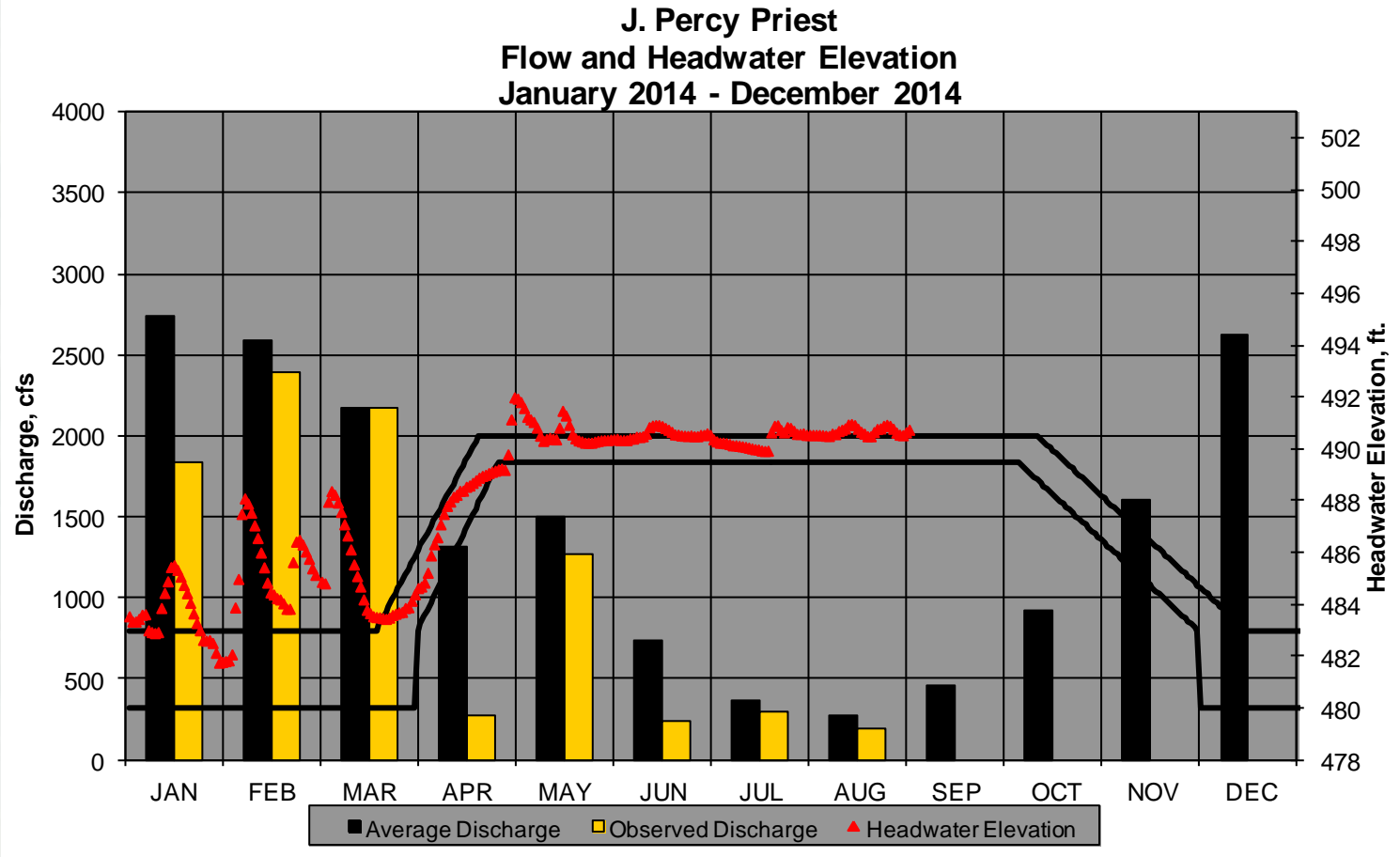
Dale Hollow 2014



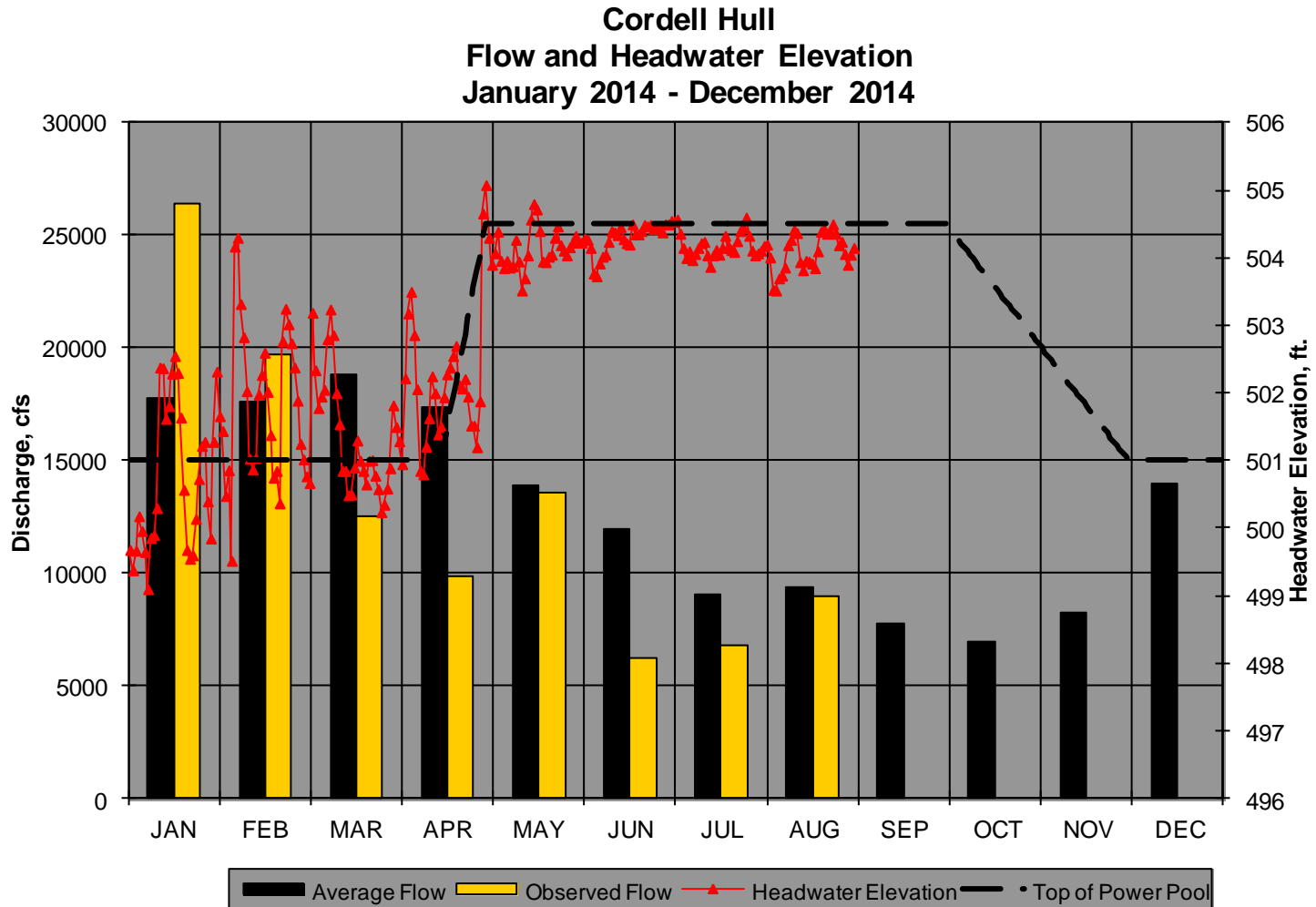
Center Hill 2014



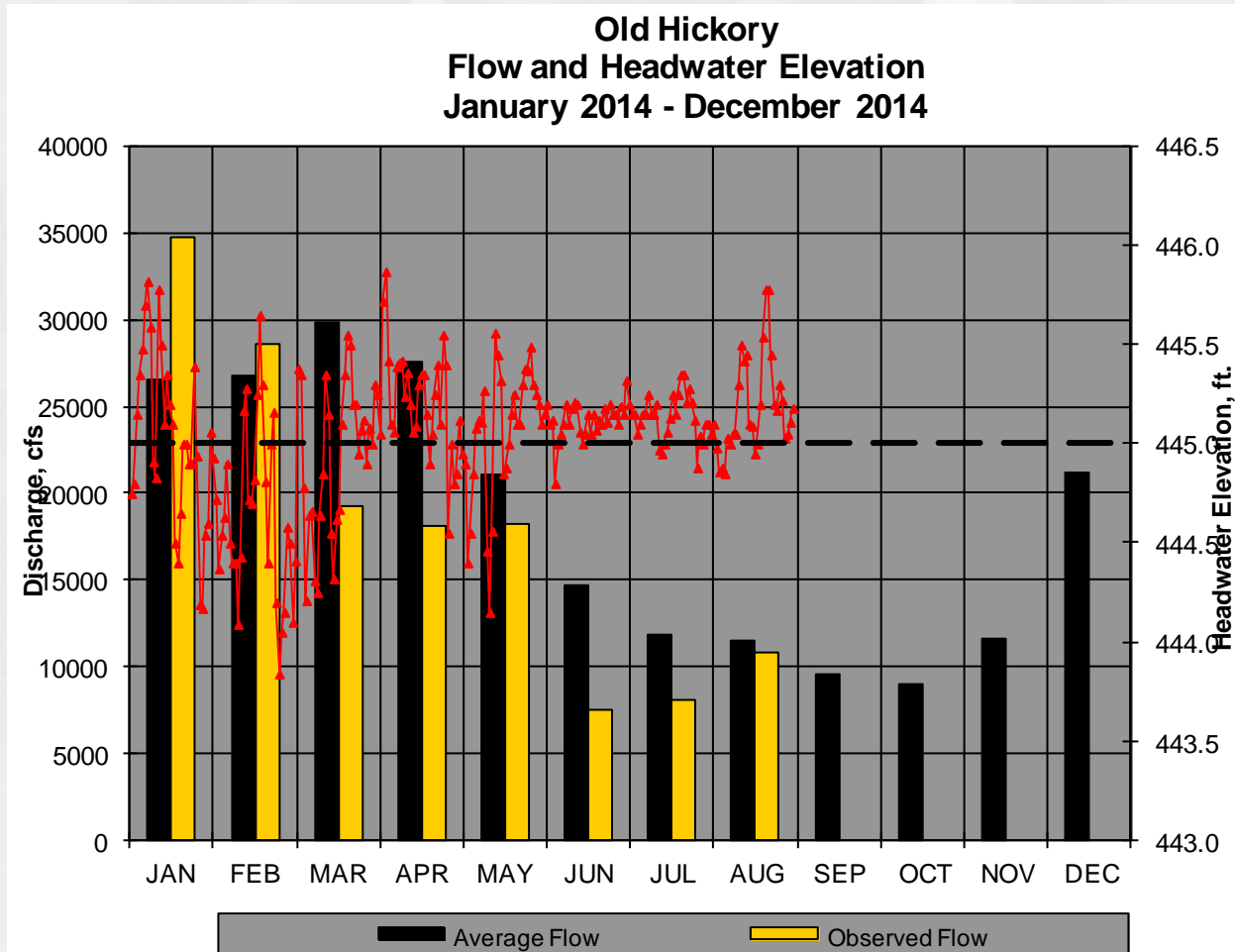
J. Percy Priest 2014



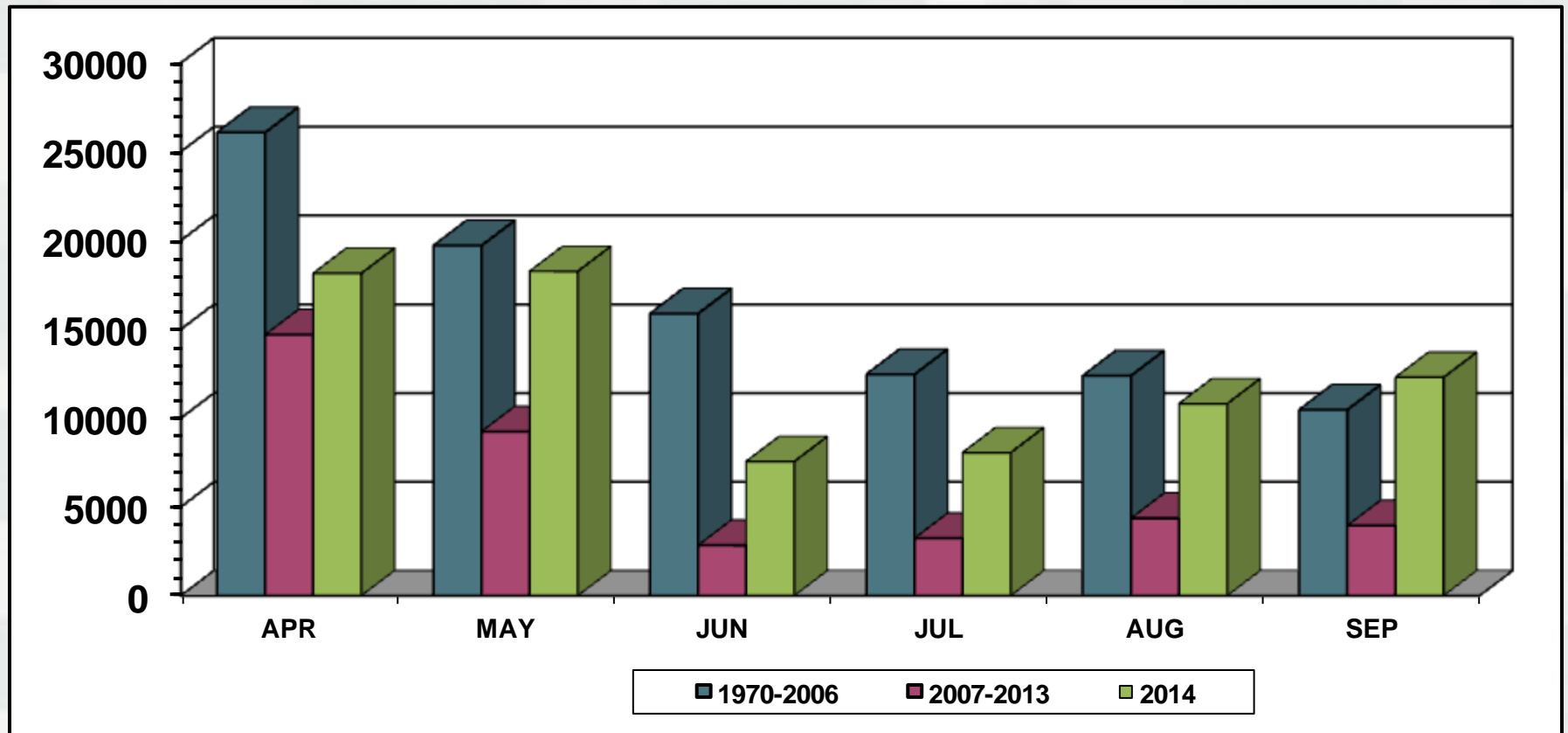
Cordell Hull 2014



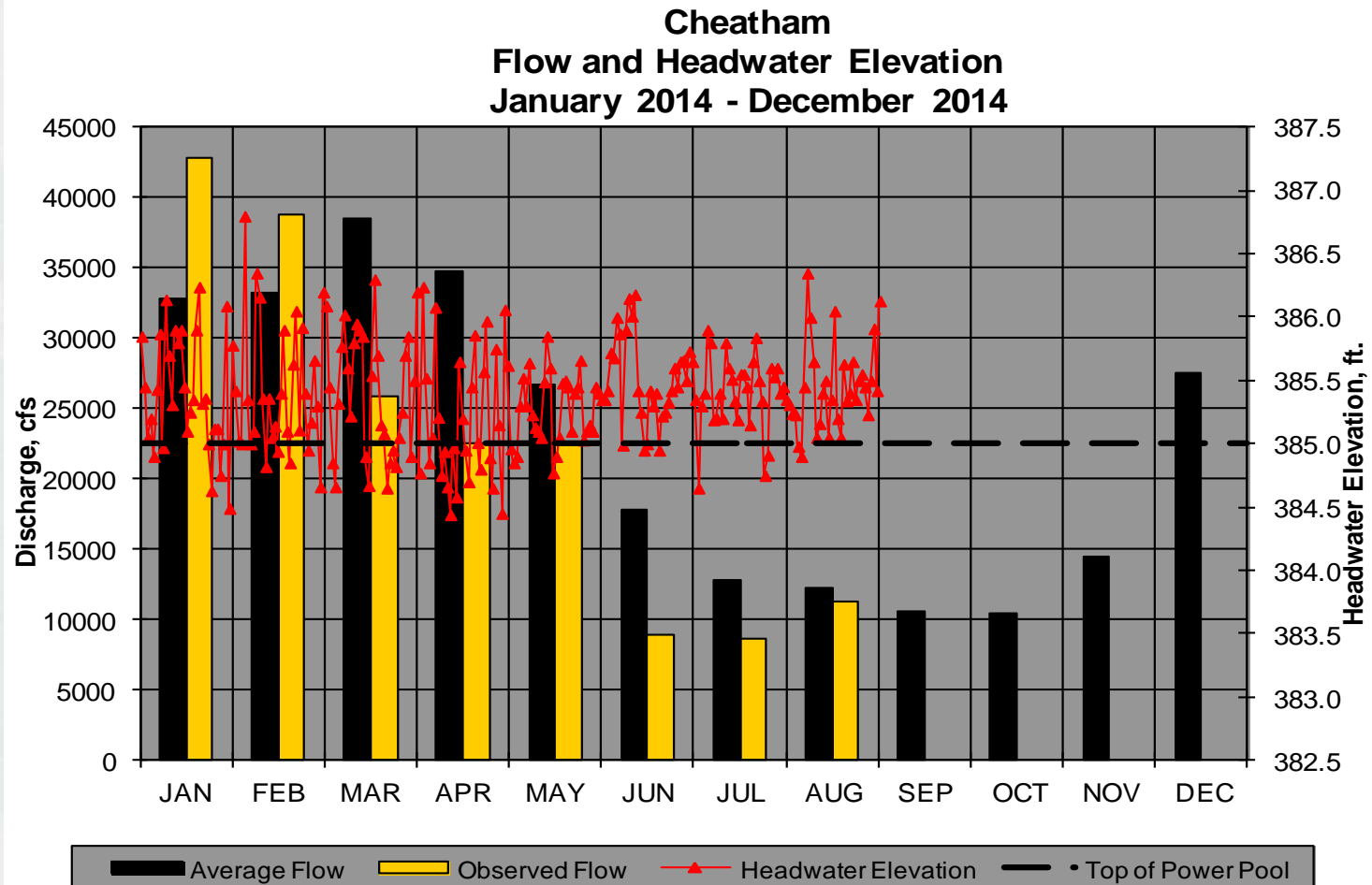
Old Hickory 2014



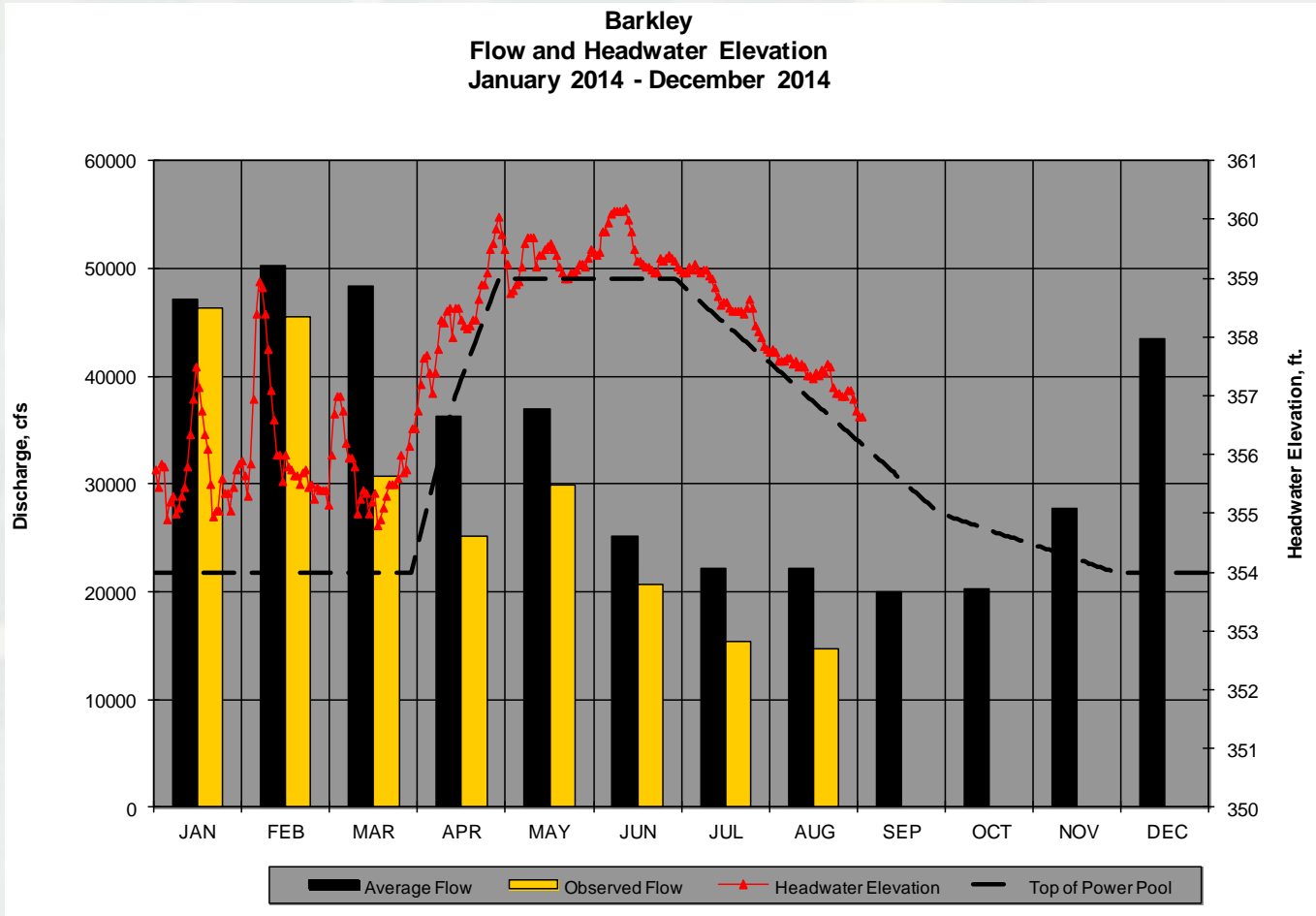
Releases from Old Hickory Dam



Cheatham 2014

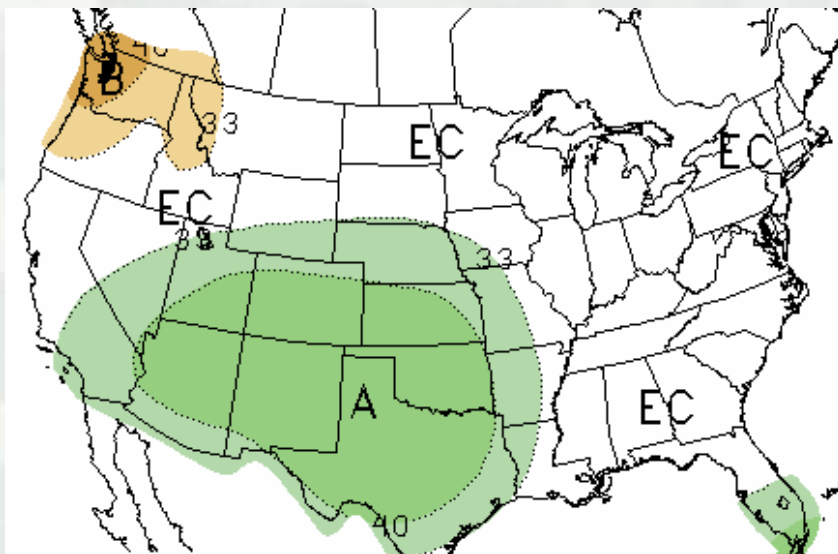


Barkley 2014

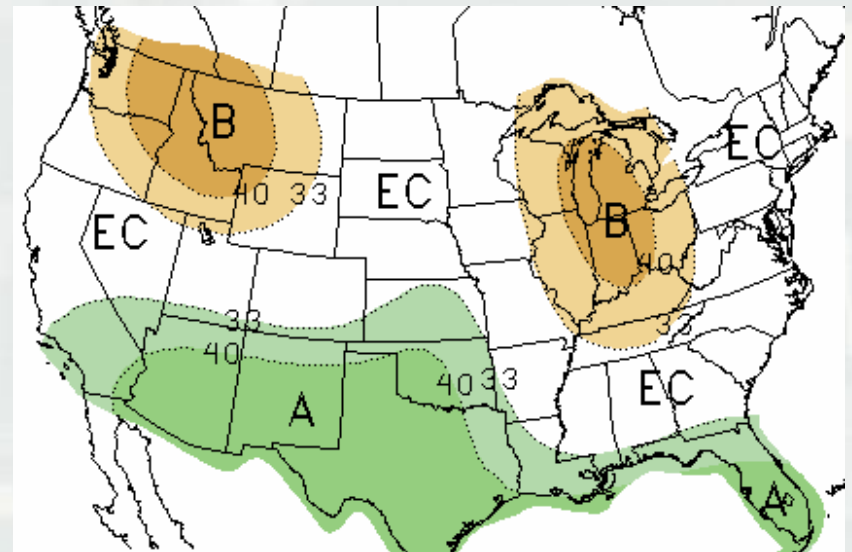


NWS Seasonal Outlook

Sep-Oct-Nov



Dec-Jan-Feb



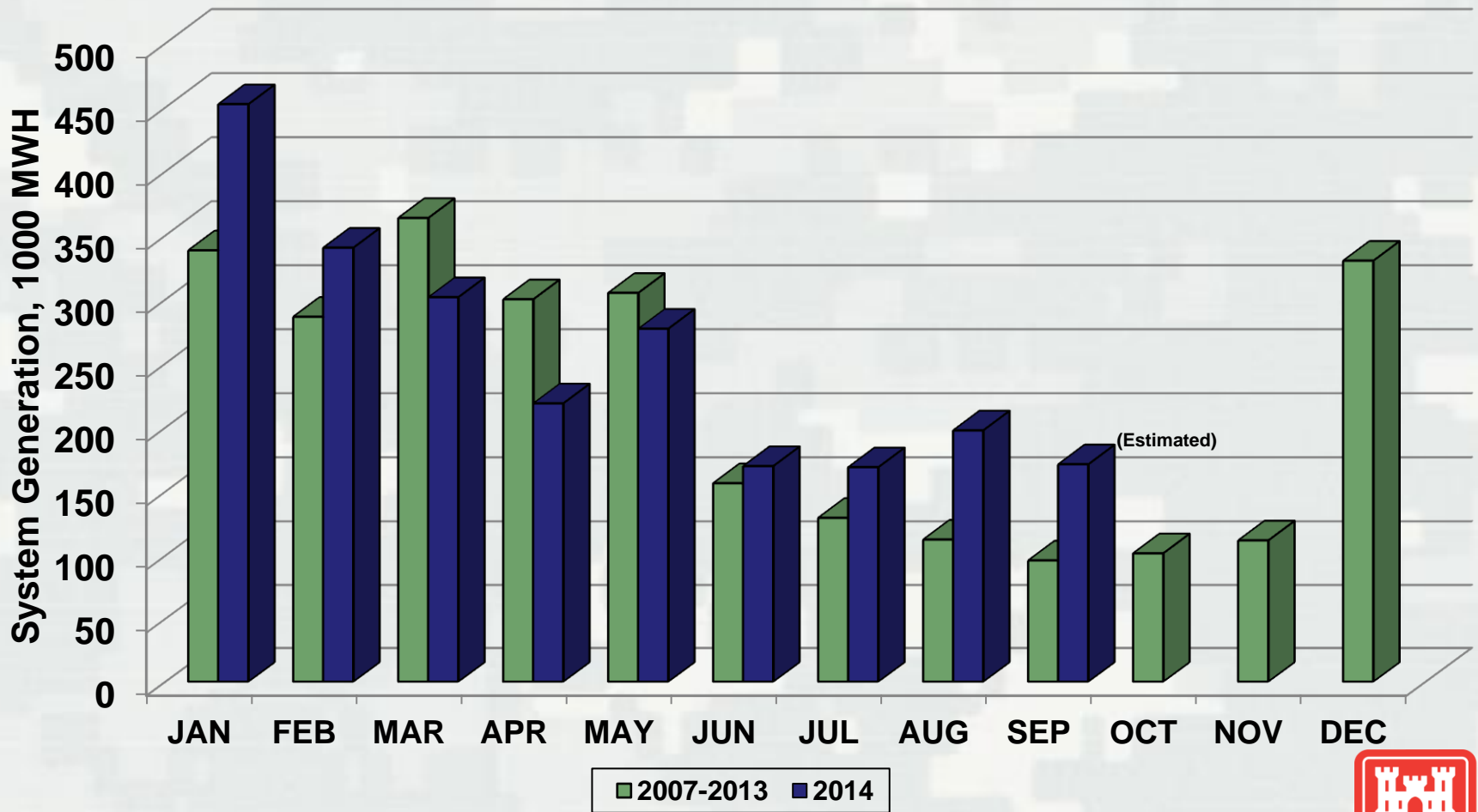
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Reservoir System Operations

- **Pool restrictions – Center Hill**
 - ▶ Pool restrictions continued in 2014
- **Environmental Impacts**
 - ▶ Temperature and dissolved oxygen conditions on the main stem have greatly improved with Wolf Creek return to normal operations
 - ▶ Operation of the Wolf Creek National Fish Hatchery
- **Navigation Impacts**
 - ▶ Ability to support navigation greatly improved
- **Power Impacts**
 - ▶ Positive response from increase in storage at Wolf Creek
 - ▶ Additional benefits will be realized when Center Hill returns to normal
- **Flood Damage Reduction**
 - ▶ Wolf Creek is available for flood control storage!
 - ▶ ESA Conservation Measure at Wolf Creek is being managed with respect to downstream conditions



Cumberland River Basin Generation 2007 – 2013; 2014



Declared Minimums

Month	Observed Avg Generation 2007-2013 (MWH)	SEPA Contract Minimums (MWH)
January	76,348	24,000
February	71,567	29,400
March	82,067	32,000
April	69,979	32,000
May	68,852	22,600
June	36,466	24,600
July	29,185	32,200
August	25,349	32,200
September	22,385	21,000
October	22,929	15,800
November	26,033	16,000
December	74,522	20,000



Declared Minimums

Month	Observed Avg Generation 2007-2013 (MWH)	SEPA Contract Minimums (MWH)	Interim Contract Minimums (MWH)
January	76,348	24,000	20,900
February	71,567	29,400	25,800
March	82,067	32,000	26,000
April	69,979	32,000	27,000
May	68,852	22,600	19,200
June	36,466	24,600	23,000
July	29,185	32,200	27,000
August	25,349	32,200	24,500
September	22,385	21,000	17,900
October	22,929	15,800	14,100
November	26,033	16,000	14,300
December	74,522	20,000	17,100



Declared Minimums

Month	Observed Avg Generation 2007- 2013 (MWH)	SEPA Contract Minimums (MWH)	Interim Contract Minimums (MWH)	Observed Generation 2014 (MWH)
January	76,348	24,000	20,900	102,121
February	71,567	29,400	25,800	85,045
March	82,067	32,000	26,000	68,088
April	69,979	32,000	27,000	51,018
May	68,852	22,600	19,200	62,535
June	36,466	24,600	23,000	39,582
July	29,185	32,200	27,000	38,103
August	25,349	32,200	24,500	44,609
September	22,385	21,000	17,900	-
October	22,929	15,800	14,100	-
November	26,033	16,000	14,300	-
December	74,522	20,000	17,100	-



Questions?



05/02/2011